Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Promoting Investment in the 3550-3700 MHz Band	)	GN Docket No. 17-258
	)	
	)	

JOINT COMMENTS OF CAMBIUM NETWORKS, LTD., THE REGULATORY AND TECHNOLOGY COMMITTEE OF THE ENERGY TELECOMMUNICATIONS AND ELECTRICAL ASSOCIATION, AND THE UTILITIES TECHNOLOGY COUNCIL

Cambium Networks, Ltd. ("Cambium"), the Regulatory and Technology Committee of the Energy Telecommunications and Electrical Association ("ENTELEC") and the Utilities Technology Council ("UTC") (together, the "Joint Commenters"), pursuant to Section 1.415 of the rules of the Federal Communications Commission ("FCC"), submits these Comments in the above-referenced proceeding to address the FCC's proposed changes to certain rules governing the Priority Access Licenses ("PALs") that will be issued for the Citizens Band Radio Service ("CBRS") in the 3550-3700 MHz Band ("3.5 GHz Band").[1] The FCC must stay the course and award PALs based on census tracts, rather than adopting the NPRM proposal to force applicants to bid on much larger and more costly Partial Economic Areas ("PEAs"). Mandating the use of such large coverage areas will foreclose participation by many localized entities or otherwise will force such entities to make uneconomic and spectrally inefficient bids to obtain rights to a coverage area that far exceeds their needs and their footprint. As a result, investment in the 3.5 GHz Band spectrum would be limited to a very few well-funded participants at the expense of localism and new competition. Accordingly, and as described below, the Joint Commenters urge the FCC to reject the proposal in the NPRM to adopt PEAs as the PAL geographic service areas.

[1] *Promoting Investment in the 3550-3700 MHz Band*, Notice of Proposed Rulemaking and Order Terminating Petitions (GN Docket No. 17-238) (issued Oct. 24, 2017) ("NPRM").

Background

The Joint Commenters all have a keen interest in the success of CBRS:

1) *Cambium.* Cambium builds Wi-Fi and fixed wireless broadband point-to-point and point-to-multipoint systems to support communications networks deployed by service providers, enterprises, governmental and military agencies, oil, gas and utility companies, Internet service providers and public safety providers. Cambium develops products and services to support a variety of broadband deployments using several spectrum bands. The company plays a growing role in the FCC's overarching efforts to accelerate the deployment of broadband services, particularly in rural areas. Cambium has developed products and services in support of the 3650-3700 MHz service and in the CBRS.

2) *ENTELEC*. ENTELEC is a user association focusing on communications and control technologies used by petroleum, natural gas, pipeline and electric utility companies. The Regulatory and Technology Committee is comprised of ENTELEC's members and provides policy advocacy and targeted educational opportunities and resources on behalf of those members.

3) *UTC*. UTC is a global trade association dedicated to serving critical infrastructure providers. Through advocacy, education and collaboration, UTC creates a favorable business, regulatory and technological environment for companies that own, manage or provide critical telecommunications systems in support of their core business.

The Joint Commenters see tremendous potential for innovative, intensive and opportunistic uses of the 3.5 GHz Band. The FCC's CBRS rules and the capacity and bandwidth potential of the spectrum can facilitate flexible use cases for many applications, including the Industrial Internet of Things, SMART Cities, and fixed residential and enterprise wireless broadband Internet access services, particularly in underserved geographies. CBRS has unique and innovative features, and represents an opportunity for new services, for new competitors and for new insights into spectrum sharing.

Private network operators, including electric utilities, water utilities, transit authorities, freight and passenger rail operators, city and county governments, oil and gas companies, and commercial agriculture interests, conduct operations in relatively small geographic areas but require reliable wireless communications networks to efficiently manage their enterprises and to

bring new advanced services to the customers. Private network operators are numerous, are geographically disbursed nationwide and must have reliable access to spectrum. In the United States, more than 19,000 cities have a population exceeding 10,000 people, and there are approximately 3,100 counties or county equivalents. Many of these local governments have limited geographic coverage needs, so they seek to enhance their security and operational efficiency with the use of wireless networks that will rely on CBRS PAL licenses based on census tracts.

The three-tiered CBRS licensing framework – Incumbent Access, Priority Access and General Authorized Access – should accommodate myriad uses and dynamic approaches to allocating scarce spectrum resources. The new Spectrum Access System will facilitate intensive use of spectrum through a variety of applications and is designed to automate the coordination of usage and sharing among users. Assignment of PALs via competitive bidding, with each PAL corresponding to a single census tract,[2] should open the door to new competition and opportunistic spectrum use, all to the benefit of the public and in furtherance of Federal policy to accelerate broadband deployment.

The Commission first adopted CBRS rules in the April 15, 2015 First Report and Order in GN Docket No. 12-354[3] and further amended those rules in 2016.[4] Certain of rules became final on July 23, 2015, and others became final on August 25, 2016.[5] The CBRS rules emerged from the development of a comprehensive record through comments and other submissions from a

[2] 47 CFR §96.3 (definition of "License Area").
[3] *See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959 (2015) ("First R&O/ Second FNPRM").
[4] *See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354, Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016).
[5] *Shared Commercial Operations in the 3550-3650 MHz Band*, 80 Fed. Reg. 26164 (rel. June 23, 2015); *Amendment of the Commission's Rules With Respect to Commercial Operations in the 3550-3650 MHz Band*, 81 Fed. Reg. 49024 (rel. July 26, 2016)

variety of interested parties. On October 24, 2017, the FCC opened a new docket and issued the NPRM to seek comment on two rulemaking petitions and on several proposed changes to the PAL rules, including longer license terms, renewability of licenses and larger geographic areas for PAL licensing. The Joint Commenters submit these comments to focus on a single issue – namely, to urge the FCC not to adopt larger geographic areas for PAL licensing, for the reasons set forth below.

Argument

THE FCC SHOULD RETAIN CENSUS TRACTS AS THE GEOGRAPHIC LICENSING AREA FOR PRIORITY ACCESS LICENSES

In the NPRM, the FCC requests comment on "increasing the geographic licensing area of PALs to stimulate additional investment, promote innovation, and encourage efficient use of spectrum resources…" including comment on "the potential effects of this change on investment in and use of the 3.5 GHz band."[6] The request reflects petitions for rulemaking filed in June 2017 by CTIA-The Wireless Association ("CTIA") and by T-Mobile (together, the "Petitioners").[7] The FCC requests comment on "Petitioners' specific request to increase the license size of PALs to PEAs, and how this would affect investment in PALs – both investments currently underway and future PAL investment – and diversity of PAL uses and users."[8] The Joint Commenters urge the FCC to reject Petitioners' request.

Petitioners' proposals represent an abrupt shift from rules that the FCC adopted only two years ago. In 2015, the FCC authorized the issuance of PALs for geographic service areas

[6] NPRM at para. 23.
[7] Petition of CTIA for Rulemaking to Amend the Commission's Rule Regarding the Citizens Broadband Radio Service in the 3550-3700 MHz Band, RM-11788 (filed June 16, 2017) ("CTIA Petition") ; Petition of T-Mobile USA, Inc. for Rulemaking To Maximize Deployment of 5G Technologies in the Citizens Broadband Radio Service, RM-11798 (filed June 19, 2017)("T-Mobile Petition").
[8] NPRM at para. 24.

represented by census tracts.[9] The FCC explained that "census tracts offer a variety of benefits, including geographic sizes varying by population density, nesting into other political subdivisions including city lines, and aligning with other natural features that track population density."[10] With more than 74,000 census tracts in the United States, PALs can be made available for highly targeted network deployments in local communities and commercial/industrial service areas while still affording opportunities for interested parties to acquire and aggregate census-tract PALs over a larger service area. These census tracts nest into license areas that the FCC uses elsewhere, such as CMAs, EAs and PEAs. The FCC considered and rejected several proposals to adopt PEAs or other larger geographic areas as the license size for PALs, opting instead to strike an important balance by authorizing PALs based on census tracts instead of much smaller areas or much larger ones.

Petitioners attempt to resuscitate arguments that the FCC considered and rejected in 2015 – namely, that PALs should be licensed in larger geographic areas. CTIA argues that the census-tract based licensing scheme is too complicated and that smaller licensed areas within PEAs should instead be made available on the secondary market via partitioning and disaggregation.[11] T-Mobile argues that evaluation of census tracts would involve significant and unnecessary time and resources and "ultimately will be unattractive to licensees."[12] The FCC should reject these arguments.

[9] First R&O/Second NPRM at para. 96.
[10] *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, GN Docket No. 12-354. Further Notice of Proposed Rulemaking, 29 FCC Rcd at 4286, para. 44.
[11] CTIA Petition at 9-11.
[12] T-Mobile Petition at 16.

1) Use of Partial Economic Areas for Priority Access Licenses Would Deter Innovation and Diverse Ownership By Creating Undue Barriers to Entry into CBRS

By assigning PALs based on census tracts, the CBRS rules provide opportunities for private network operators, like cities, counties, electric utilities, water utilities, rail, and oil and gas operators, to deploy locally targeted, high-capacity networks to support their operations. In addition, many fixed wireless operators are smaller, locally owned-and-operated companies that have neither the resources to bid on a large licensed geographic service area nor the need for the large footprint associated with it. To the contrary, some CBRS use cases benefit from a local presence. The FCC has designated this "innovation band" for flexible uses and specifically identified local small-cell deployments as a key use of the spectrum for capacity and bandwidth. The FCC also noted that use of census tracts would likely reflect existing geographic and corporate boundaries, which would imply that those boundaries may often comport with specific use cases for localities, utilities and operators. While Petitioners object to the supposed "complexity" of the FCC assigning licenses based on census tracts, these concerns are overstated. The FCC has shown great facility with designing and implementing complex systems of awarding and allocating spectrum licenses in simultaneous multi-round auctions. There's no reason to expect that the same could not be done for competitive bidding for PALs, given the immense processing power of modern systems and the FCC's extensive auction experience.[13]

In addition, licensing PALs based on census tracts would allow opportunities for new competition in the provision of broadband services by allowing smaller local entities to bid to acquire spectrum that is narrowly tailored to their local service areas rather than being forced to bid on areas that are many times larger. Changing PAL service areas from census tracts to PEAs

[13] *See, e.g.*, Comments of Google Inc. and Alphabet Access in Response to Petitions for Rulemaking, GN Docket No. 12-354 at 25.

would impose insurmountable barriers to entry for local private-network operators and WISPs, thereby stifling new competition by regulatory fiat. While there are more than 74,000 census tracts in the United States, there are only 416 PEAs.[14] PEAs vary significantly in size, but larger PEAs comprise several counties, and sometimes multiple states. As an illustration, Cambium has offices in PEA Number 3, which comprises 12 counties in and around Chicago, Illinois. Designating the license sizes based on PEAs would tilt the marketplace by keeping PALs out of reach to all but the largest operators. By contrast, retaining census tracts would provide bidding opportunities for a variety of interested parties and would enhance competition by allowing participation by new entrants. Indeed, PEA licenses may be appropriate for other spectrum where scale is paramount, but CBRS was designated as an "innovation band" with a highly local focus, not as simply another flavor of 5G spectrum. As a result, Petitioners' proposals to expand the PAL service area must be rejected to preserve competitive entry and localism.

2) *The industry has made significant investments in the 3.5 GHz Band in reliance on the 2015 rules*

Petitioners raised similar arguments in the rulemaking leading up to the 2015 rules – arguments that the FCC considered and ultimately rejected barely two years ago in favor of a balanced approach. In comments filed in 2013, T-Mobile asked the FCC to use larger areas such as counties for licensing, arguing that census-tract-based licenses would be too numerous and burdensome for T-Mobile to manage.[15] In 2014, CTIA advocated for the use of traditional mobile area licenses or county-based licensing for PALs.[16] Petitioners have had a full and fair opportunity to present their arguments in a comprehensive rulemaking record. Nevertheless, rather than take "no" for an answer yet again, Petitioners seek to disrupt settled expectations and investment that

[14] "Wireless Telecommunications Bureau Provides Details About Partial Economic Areas," GN Docket No. 12-268, Public Notice, DA 14-759 (rel. June 2, 2014).
[15] Comments of T-Mobile in GN Docket No. 12-354 at pp. 6-7 (filed Dec. 5, 2013).
[16] Comments of CTIA-The Wireless Association in GN Docket No. 12-354 at pp. 7-8 (filed Jul. 14, 2014).

Cambium and others have made in reliance on the rules adopted in 2015.

Petitioners seeks to strand significant investments of time and resources that parties already have made. While the current docket is about "Promoting Investment in the 3550-3700 MHz band," in fact significant investments already have occurred. Since 2015, industry stakeholders have engaged in significant efforts to work toward finalizing technical details that the FCC had left open for industry input. Seven entities accepted the FCC's invitation to submit applications to become SAS administrators, and on December 21, 2016, the FCC conditionally approved these entities.[17] WinnForum has engaged in significant efforts toward setting standards and protocols. Despite this industry-wide reliance on the structure that the FCC adopted in 2015, the Petitioners request dramatic and unwarranted changes in that structure. The FCC must reject this effort.

Conclusion

For the reasons set forth above, the Joint Commenters respectfully request that the FCC reject Petitioners' calls for larger licensed service areas for CBRS PALs and instead assign one PAL per census tract nationwide, as provided under current FCC rules.

Respectfully submitted,

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[17] "Wireless Telecommunications Bureau and Office of Engineering and Technology Conditionally Approve Seven Spectrum Access System Administrators for the 3.5 GHz Band," Public Notice, GN Docket No. 15-319 (rel. Dec. 21, 2016).

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December 28, 2017